

The Pikalert™ Road Weather Hazard Forecast System



Mike Chapman
National Center for Atmospheric Research
Boulder, Colorado

Aug 13, 2014

IMO 2 Partners



Booz | Allen | Hamilton

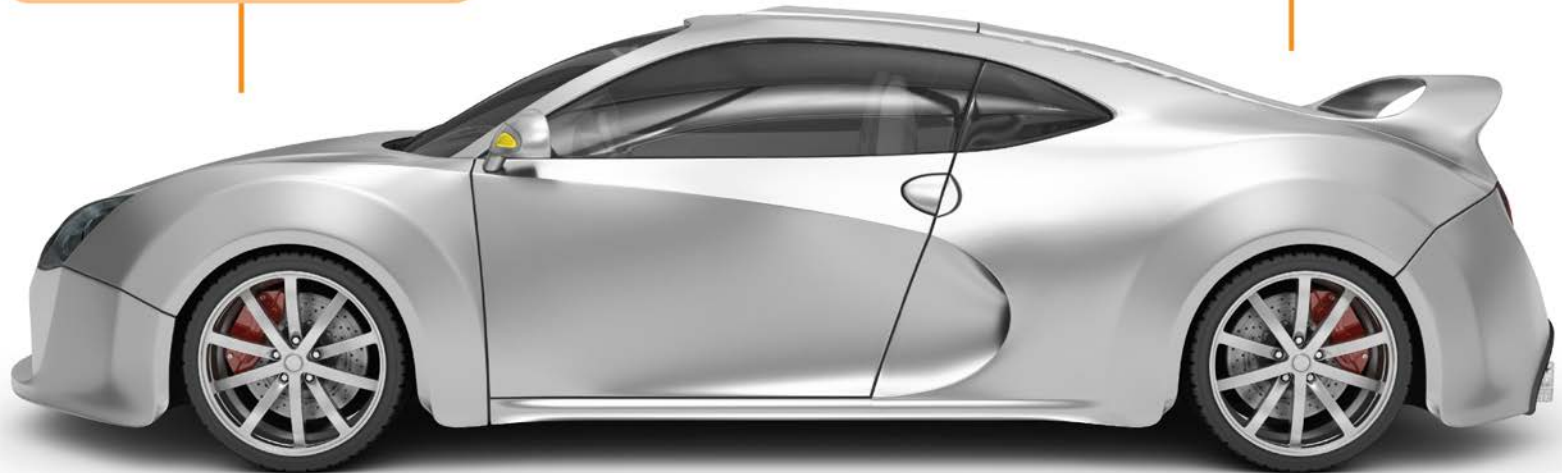
UMTRI



Vehicle Data

Sun/Rain Sensor
Windshield Wiper Setting
Head Lights Status
Ambient Air Temperature

Speed and Heading
Adaptive Cruise Control (ACC)
Location and Elevation
Hours of Operation

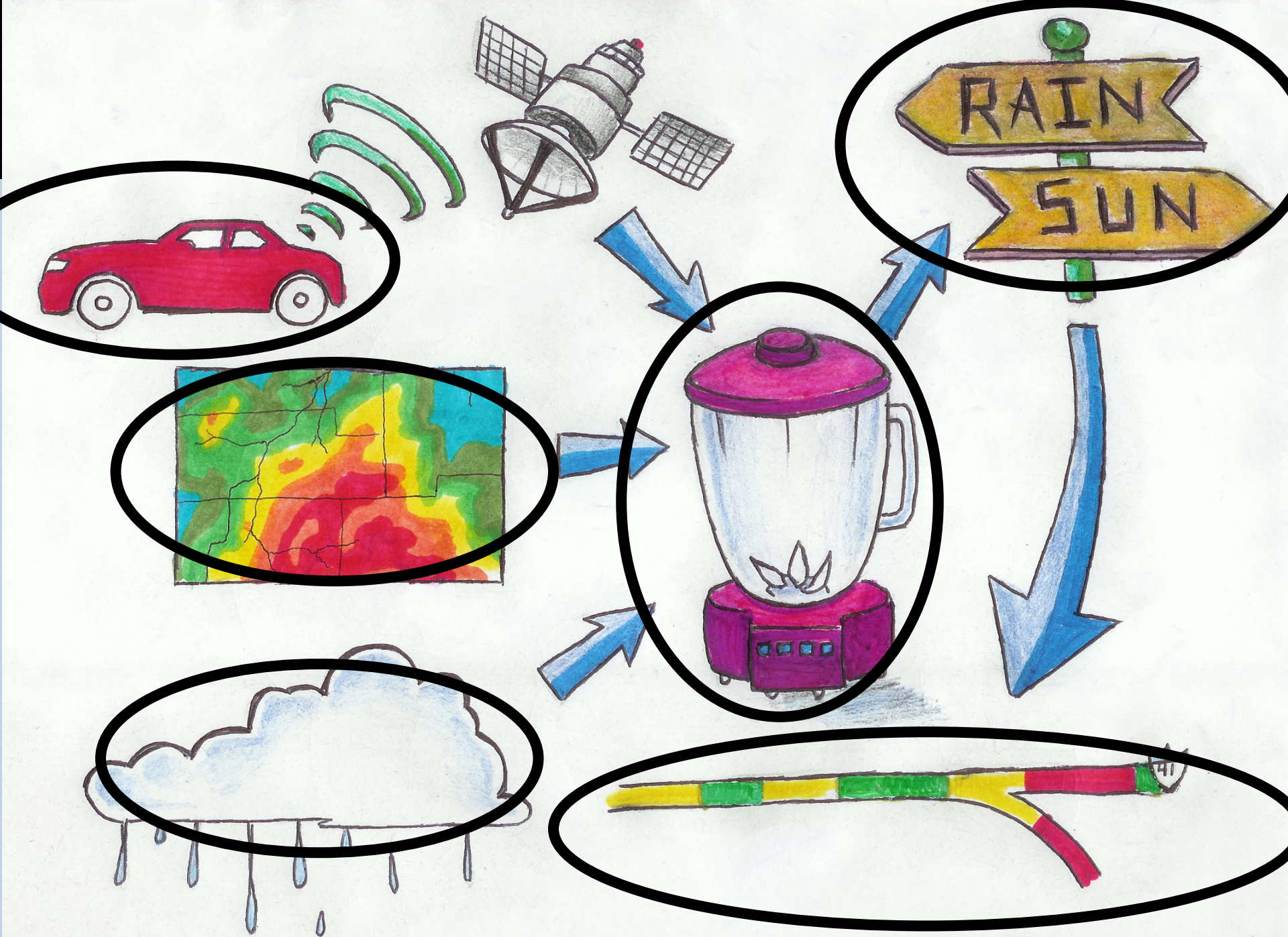


Anti-lock Braking System (ABS)
Brake Status
Stability Control
Traction Control

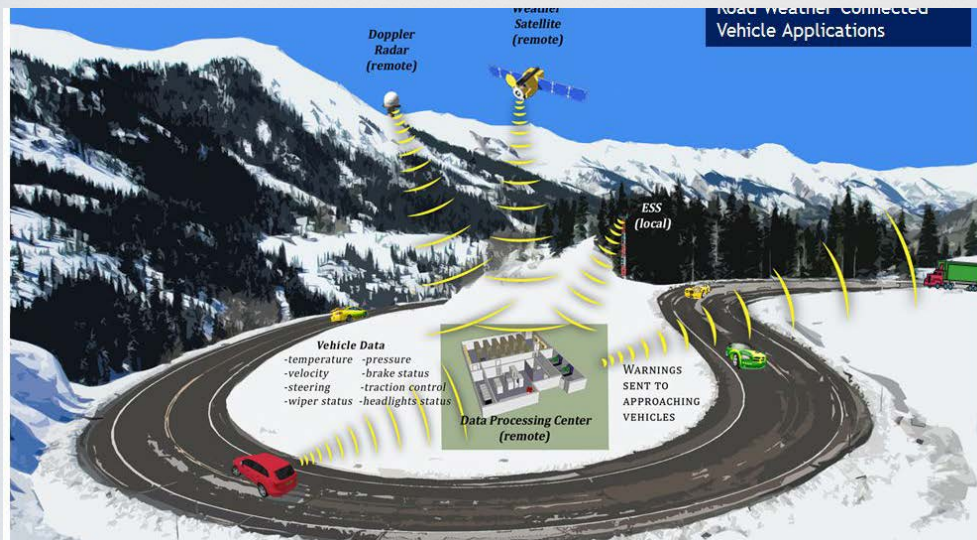


How do we make sense of such a
potentially large data set?





The Pikalert™ Vehicle Data Translator



- System designed to manage and quality check mobile observations
- Statistics are compiled that are segment-specific (e.g. # of wipers, average road temperature, etc.)
- Road-weather inferences are made
- VDT 3.0 TO 4.0 – segment information not totally dependent on mobile observations



Pikalert™ 4.0



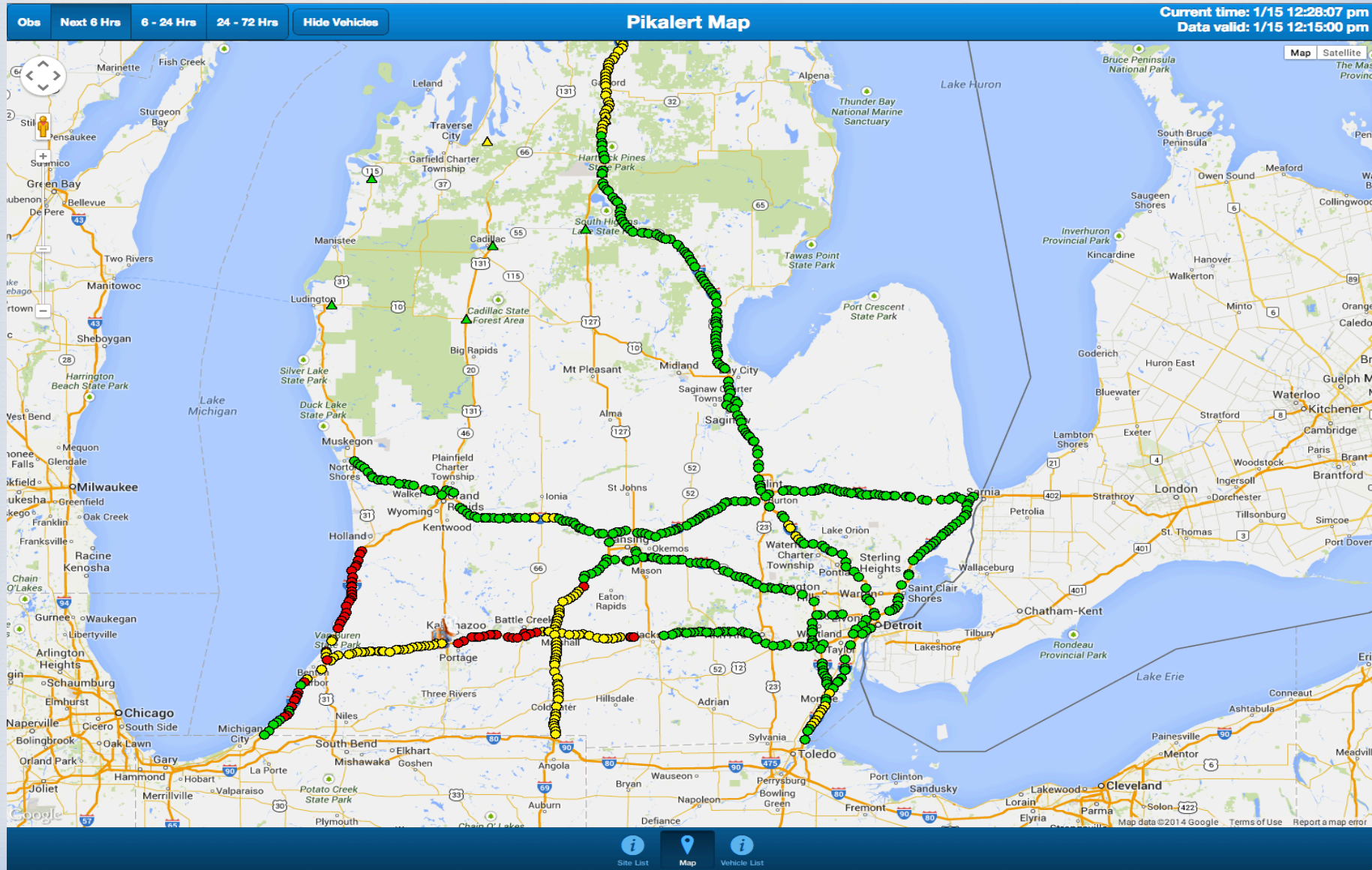
Initial Deployments

IMO 2

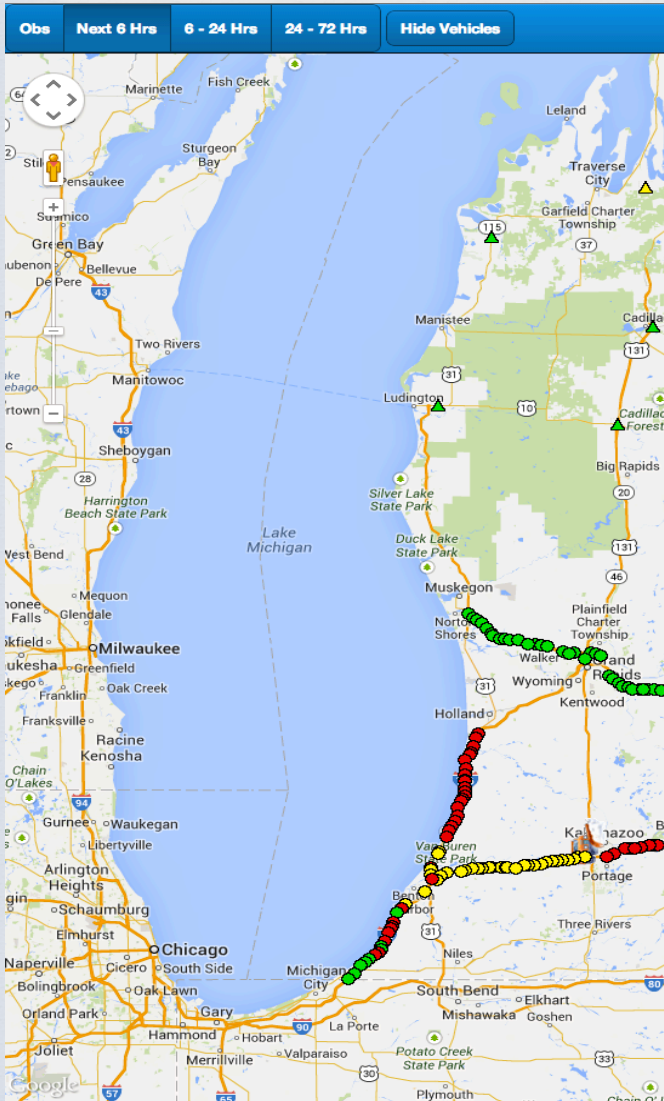
- ❖ Nevada
- ❖ Minnesota
- ❖ Michigan
- ❖ ITS World Congress



Enhanced Maintenance Decision Support System - EMDSS

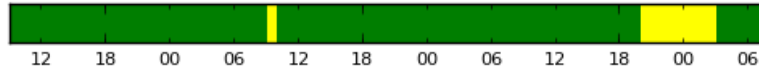


EMDSS Forecast

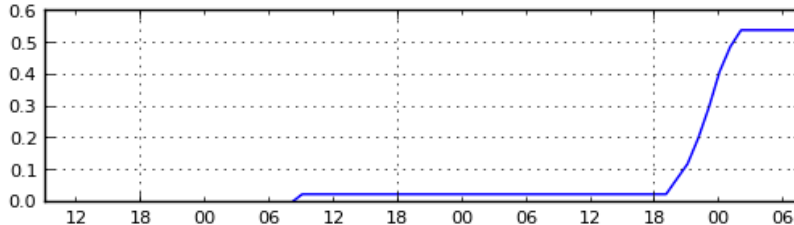
[Back](#)[Forecast](#)[Treatments](#)[Alerts](#)[Road Segment Observations](#)

MN ROAD SEGMENT Interstate 90 95

Alert
Summary

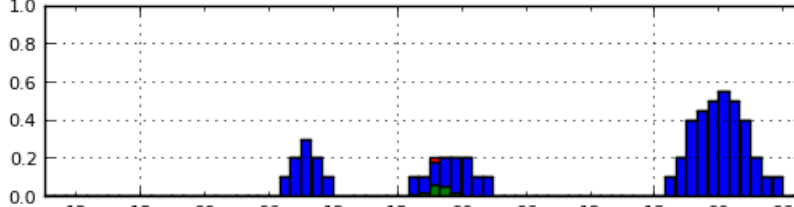


Snow (in)



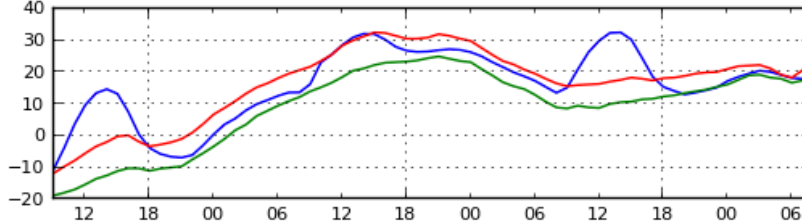
Snow Accum

Prob Precip



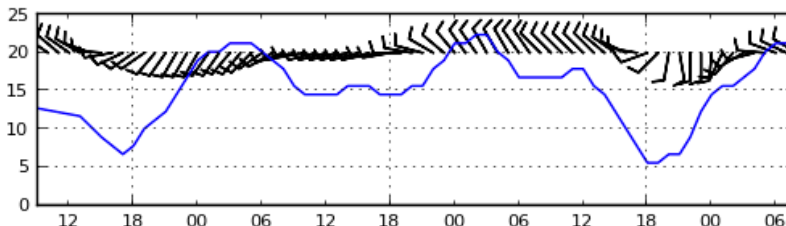
Rain
Snow
Ice

deg F



Road Temp
Air Temp
Dew Point

mph



Wind Speed
Wind Dir

Recommended
Treatments

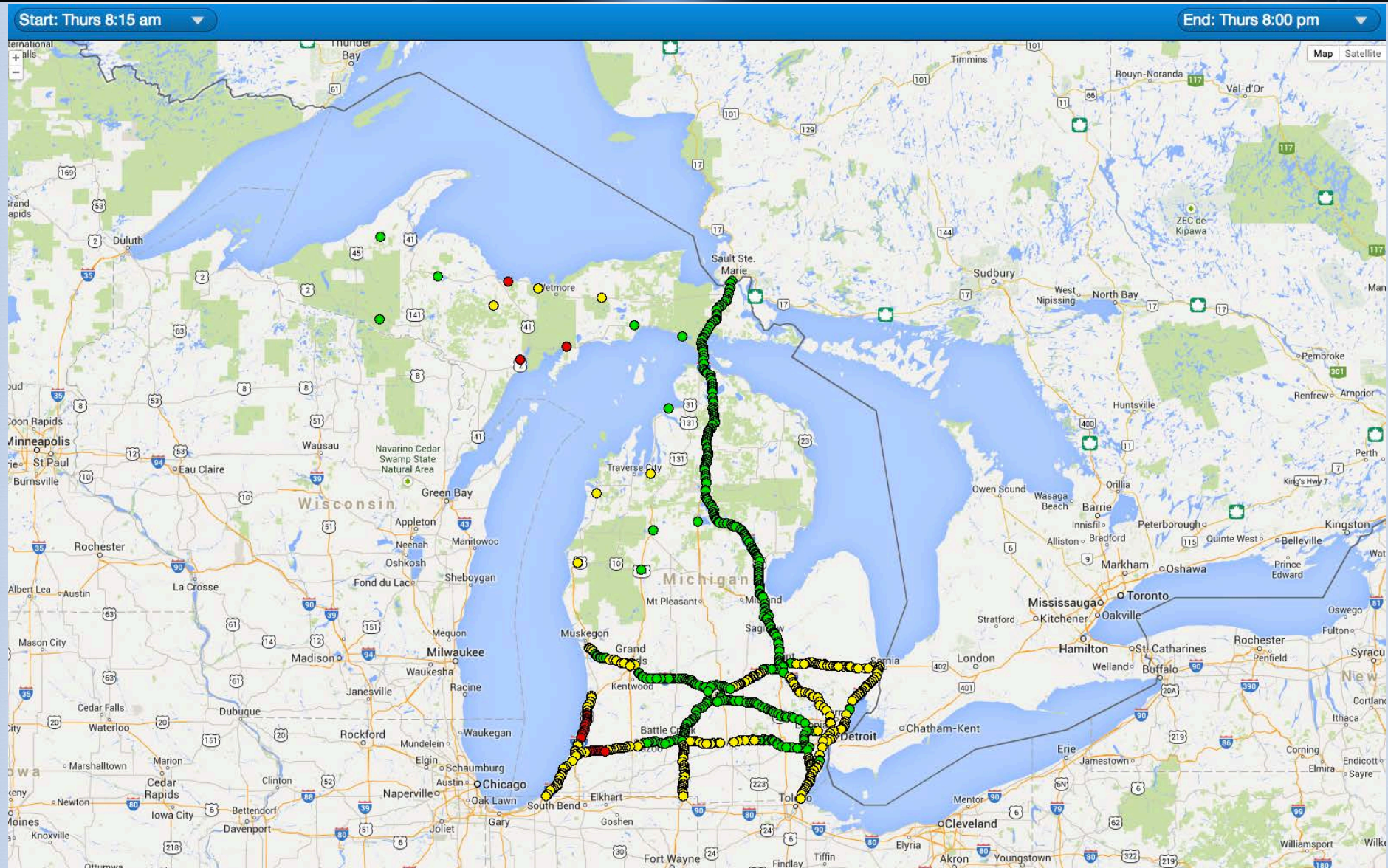


20140124

20140125

20140126

Motorist Advisory & Warning (MAW)



Hazard Algorithms

❧ Precipitation intensity and type

- ❧ Snow

- ❧ Rain

- ❧ Ice

- ❧ Road splash

❧ Pavement condition

- ❧ Dry

- ❧ Wet

- ❧ Icy

- ❧ Hyrdoplane

❧ Visibility

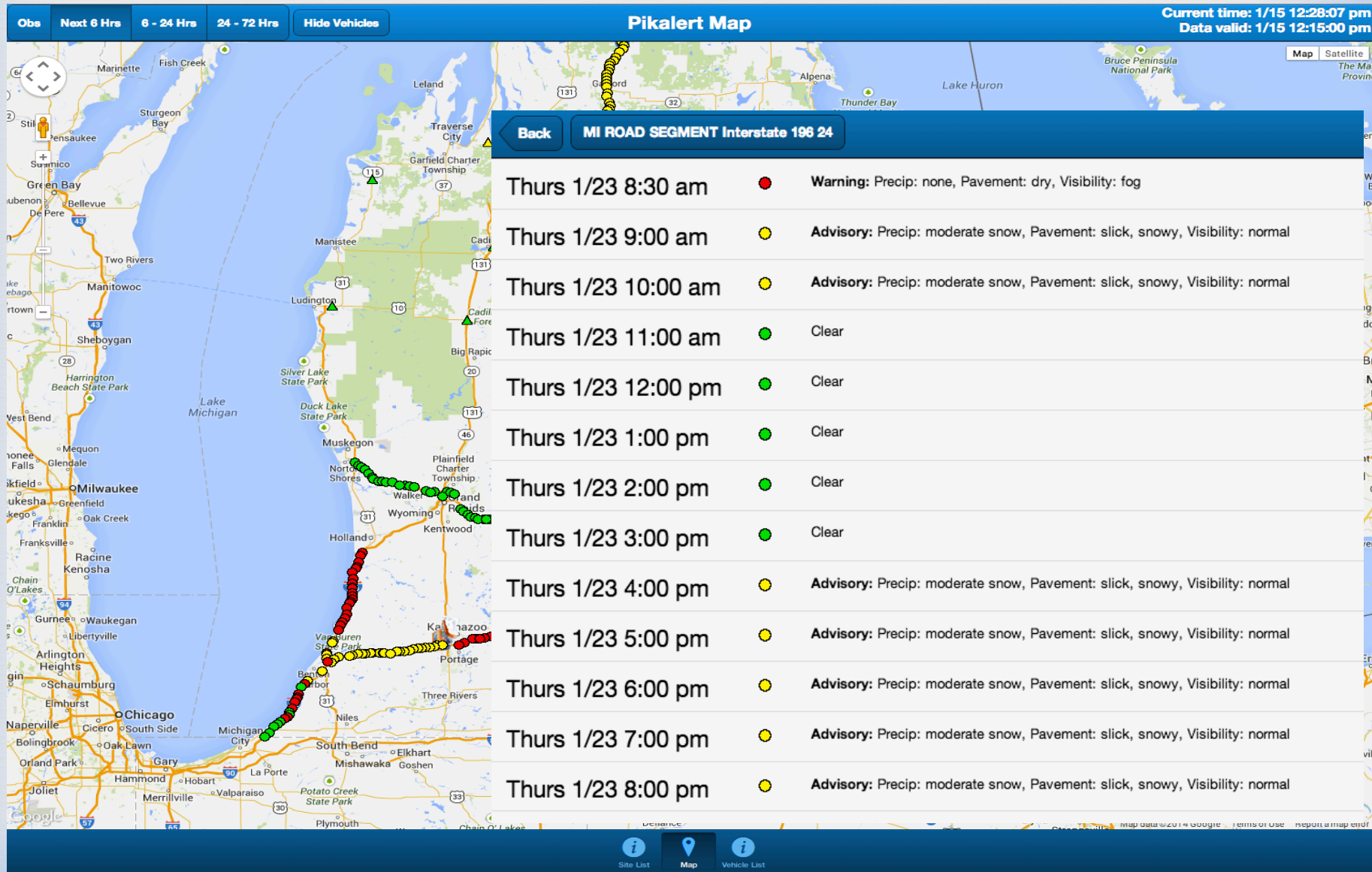
- ❧ Clear

- ❧ Blowing snow

- ❧ Dense Fog

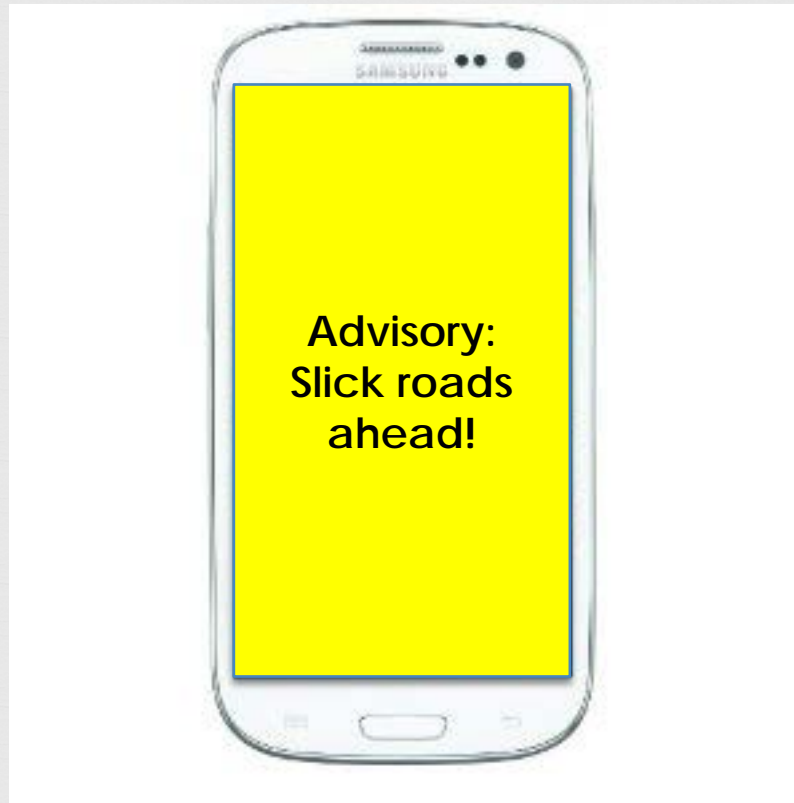


Hazard Algorithms



MAW Phone Application

- ☞ Provides situational awareness reports while on the road



Additional Deployments

IMO 2

- ❖ Nevada
- ❖ Minnesota
- ❖ Michigan
- ❖ ITS World Congress



Additional Deployments

IMO 2

- ❖ Nevada
 - ❖ Minnesota
 - ❖ Michigan
 - ❖ ITS World Congress
- Alaska



Additional Deployments

IMO 2

- ❖ Nevada
- ❖ Minnesota
- ❖ Michigan
- ❖ ITS World Congress



Alaska

Colorado



WeatherCloud



Additional Deployments

IMO 2

- ❖ Nevada
- ❖ Minnesota
- ❖ Michigan
- ❖ ITS World Congress



Alaska

Colorado

Michigan



WeatherCloud



Download

☞ Software download

☞ http://www.rap.ucar.edu/projects/connected_vehicles/pikalert/

The screenshot shows the NCAR Connected Vehicles | RAL website. The header includes the NCAR logo and a Google Custom Search bar. The breadcrumb trail reads: You are here: NCAR • RAL • Pikalert™ Downloads information page. The main content area is titled "Pikalert™ Downloads Information Page | Release 4.0". It contains instructions for downloading the software, including a registration form for new users and a download link for existing users. A sidebar on the left lists navigation options: Overview, Download Pikalert™, Publications, Presentations, Press, and Contacts. A sidebar on the right lists Quick Links: Register for Release, FAQs - Frequently Asked Questions, and License agreement. At the bottom, there is a section for "Pikalert™ Components" and a form to enter an email address to begin downloading.

NCAR Connected Vehicles | RAL

You are here: NCAR • RAL • Pikalert™ Downloads information page

Overview

Pikalert™ Downloads Information Page | Release 4.0

Before you download Pikalert™ software, please take a minute to read the [Pikalert™ License Agreement](#), and then enter your email address below.

If you are a new user, you will be prompted to fill out a registration form. This would allow us to know who is using the software and provide notices of updates. When the registration form is submitted, you will be redirected to the software download page.

If you have previously registered and wish to download the software again, simply enter your email address below and you will be automatically redirected to the software download page.

Pikalert™ Components

To begin downloading, enter your e-mail address:

Quick Links

- [Register for Release](#)
- [FAQs - Frequently Asked Questions](#)
- [License agreement](#)

Contact Info



☞ Mike Chapman
☞ mchapman@ucar.edu
☞ 303.497.8395

Sheldon Drobot
drobot@ucar.edu
303.497.2705

